# Not always the best medicine: Why frequent smiling can reduce wellbeing

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## HIGHLIGHTS

• The meaning people attach to the act of smiling affects their subjective wellbeing.
• People believe that smiling either reflects happiness or is an attempt to become happy.
• Smile frequency can increase or reduce wellbeing, based on their belief.
• Frequent smiling can backfire and make a person less happy.

## ARTICLE INFO

## ABSTRACT

Conventional wisdom (and existing research) suggests that the more people smile, the more positive they feel, and positive feelings are known to enhance wellbeing. Across three studies, instead, we show more frequent smiling does not always increase happiness, and as a consequence, wellbeing. Frequent smiling results in more wellbeing than infrequent smiling only among people who interpret smiling as reactive or reflecting happiness. Among people who interpret smiling as proactive and causing happiness, frequent smiling results in less wellbeing than infrequent smiling. Here, frequent smiling backfires, evoking less happiness than infrequent smiling, which in turn reduces wellbeing. Thus, smiling by itself does not increase happiness, or wellbeing. Instead, the belief that one must already be happy when one smiles is what increases happiness, and as a result, wellbeing. (128 words)

## Introduction

Happiness is central to a person's long-term wellbeing. It improves thinking, boosts immune health, relaxes blood vessels and lowers blood pressure, increases social engagement, improves personal relationships, increases pain tolerance, and helps people cope with negativity (Aspinwall, 1998; Baron, 1990; Barsade, 2002; Bodenhausen, Kramer, & Susser, 1994; Clark & Isen, 1982; Fredrickson, 2001; Labroo & Patrick, 2009; Lyubomirsky, King, & Diener, 2005). Essentially, happiness helps people live longer and live better. Happiness also boosts immediate wellbeing, because people interpret their positive feelings as implying that life is good (Schwarz & Clore, 1983). Nations want to improve wellbeing of their citizens, and most people want, and try, to be happy (Gross, 1998 a,b; Larsen, 2000; Thayer, Newman, & McClain, 1994).

A simple way to increase positive feelings is to adopt a smile-like expression (Ekman & Davidson, 1993; Ekman, Freisen, & Ancoli, 1980; Kleinke, Peterson, & Rutledge, 1998; Kleinke & Walton, 1982; Strack, Martin, & Stepper, 1988). Physiologically, smile-like facial expressions, relative to neutral or frown-like expressions, enhance positive feelings by increasing air flow through the nose which cools blood to the brain (McIntosh, Zajonc, Vig, & Emerick, 1997; Zajonc, Murphy, & Inglehart, 1989). Psychologically, people infer their attitudes from their actions just as an observer might (Bem, 1972; Koriat, Ma'ayan, & Nussinson, 2006), and facial expressions provide feedback to a person regarding how he is feeling (Larsen, Kasimatis, & Frey, 1992). As a result, "the free expression of an emotion can intensify it" (Darwin, 1955; James, 1950). Overtime, pairing of positive outcomes and positive feelings with smile-like expressions can also result in smiling becoming conditioned with positive feelings; consequently, the mere act of smiling can evoke positive feelings (Dimberg, 1987; Schnall & Laird, 2003). In this research, however, we consider whether smiling can instead make a person less happy and thereby reduce a person's wellbeing.

The proposition that smiling is likely to always increase positive feelings assumes that there is only a single, specified positive association

between positive-emotion experience and smiling behavior. While unique emotion–behavior links may have existed during early evolution, and in some situations there may still be a predominant link between emotion and behavior, the development of more complex cognitive-systems in people has modified these links (Baumeister, Vohs, DeWall, & Zhang, 2007; Horstmann, 2003; Isen, 1984; Robinson, 1998). The same emotion can evoke multiple behaviors, and multiple emotions can result in the same behavior (Robinson, 1998). Furthermore, in the context of smiling, in some cultures smiling actually is used to mask negative emotions such as anger (e.g., the Japanese; Friesen, 1972), embarrassment (e.g., the British; Edelmann et al., 1987), or sadness (e.g., Russians; Matsumoto, Yoo, Hirayama, & Petrova, 2005). To such people, smiling is likely to be unpleasant and even remind them of feeling negative. Primatologists additionally claim that evolutionarily, smiling was often a response to fear and submission and associated with negative emotion (Preuschoft, 1992). Thus, for some populations and in some situations, smiling may convey to a person that he is not happy, and if the person senses that he is smiling, it is possible that smiling might reduce the experience of happiness.

We posit that although people smile when they are happy (reactively), and smiling does reflect happiness, people also smile when they are unhappy (proactively), to mask negative emotion, or to become happy. As a result, people are likely to associate the act of smiling with feeling happy but also with feeling unhappy and smiling may be associated either with the belief that a person is happy or that the person is unhappy and trying to become happy. Depending on which of these beliefs is momentarily or chronically accessible to a person at the time he smiles, the act of smiling may increase or reduce the person's current happiness, if the person somehow senses that he is smiling. Therefore, frequent smiling will increase happiness only when a person's accessible theory is that smiling is reactive. When the accessible theory is that smiling is proactive, frequent smiling will reduce happiness. Here, smiling may evoke inferences that one is experiencing negative emotion and feel physiologically unpleasant. Thus, smile-theory and smile-frequency will jointly influence current happiness. As judgments of wellbeing are constructive and assimilate with a person's momentary happiness (Schwarz & Clore, 1983), they are likely to incorporate these experiences of happiness or unhappiness caused by smiling.

Across three studies, we tested whether smile-theory moderates the effect of smiling on wellbeing. In Study 1, a field study, we measured smile-theory and smile-frequency in a longitudinal design, and we used both of these factors to predict wellbeing. In Study 2 we then manipulated smile-theory and whether facial activity is smile like or non-smile like, and we used these measures to predict wellbeing. Study 3 was designed to find direct evidence that smile-theory moderates the effect of smiling on happiness, which in turn impacts wellbeing. It is interesting that a factor as subtle as a person's accessible smile-theory can moderate momentary experience of happiness from smiling, and as a result, wellbeing. Taken together, our findings show that frequent smiling does not always make people happy—rather, the impact of smiling on happiness is contingent on accessible naïve theories about why people smile, and these theories can change whether frequent smiling increases or reduces experienced happiness, and as a consequence, wellbeing.

## Study 1: Measured smile-theory and smile-frequency — a longitudinal investigation

One-hundred twenty-six participants (53 males; $M_{age} = 34.65$, $SD = 12.32$) from Mechanical Turk's online panel were compensated $1 each to participate in a study on people's life experiences. The study comprised two short 15-minute surveys to be completed exactly two weeks apart, each conducted in the evening between 6 pm and 8 pm. Eighteen participants who completed the first survey did not respond to our email requesting that they complete the second survey. The data of these participants could therefore not be included

in our analysis, resulting in one-hundred eight complete responses (45 males; $M_{age} = 35.12$, $SD = 12.36$).

Both surveys were identical. In each survey, after providing informed consent, participants were instructed that they would next report their agreement with a few personal statements. Participants then completed our key measures of smile-frequency for that day ("I smiled a lot today," "I smiled very frequently today," 1 = strongly disagree, 7 = strongly agree; averaged to form a smile-frequency index; $r_{survey1} = .90$, $r_{survey2} = .95$, $ps < .001$) and smile-theory (1 = people smile to feel good; 7 = people smile when they feel good; the smile-theory and smile-frequency questions were counterbalanced). These measures were embedded in a series of demographic measures that included self-reported fluency in English, gender, age, and ease of using a computer (these factors did not impact our results) to reduce attention to the individual items and to limit demand effects, and additionally, all of the items were presented individually, each on a separate webpage. Notably, in our sample, participants tended to endorse reactive smiling theories more than proactive smiling theories ($M = 5.84$, $SD = 1.17$), as one might expect in a western sample. They then reported wellbeing on the 5-item Satisfaction with Life Scale ([SWLS], Diener, Emmons, Larsen, & Griffin, 1985). Sample items include: in most ways my life is close to ideal, the conditions of my life are excellent, and I am satisfied with my life (all items measured on 7-point scales with 1 [strongly disagree] and 7 [strongly agree]). We averaged these measures to create an index for participants' subjective wellbeing ($\alpha_{survey1} = .90$; $\alpha_{survey2} = .91$; higher scores indicate greater subjective wellbeing).

## Results and discussion

For all studies, associated means, standard deviations (where the mean is not a point estimate) and sample size are provided in Table 1.

### Overall wellbeing

For survey1 (n = 126), a regression analysis predicting wellbeing from mean-centered smile-theory, mean-centered smile-frequency, and their interaction revealed a main effect of smile-frequency, b = .44, SE = .07, $t(122) = 6.66$, $p < .001$, and the predicted interaction between smile-theory and smile-frequency, b = .18, SE = .04, $t(122) = 4.29$, $p < .01$, $\eta^2 = .24$. Spotlight analyses ($\pm 1SD$, Aiken & West, 1991) revealed, not surprisingly, that among the reactive-smile participants, frequent ($M = 6.39$) compared to infrequent ($M = 3.12$) smiling resulted in higher wellbeing, b = .54, SE = .17, $t(122) = 3.26$, $p < .01$. Importantly, among the proactive-smile participants, frequent ($M = 2.48$) compared to infrequent ($M = 5.62$) smiling resulted in lower wellbeing, b = −.52, SE = .13, $t(122) = −4.13$, $p < .001$. As a replication, survey2 (n = 108) regression analysis also revealed a main effect of smile-frequency, b = .44, SE = .07, $t(104) = 6.01$, $p < .001$, and the predicted interaction between smile-theory and smile-frequency, b = .12, SE = .09, $t(104) = 1.32$, $p = .07$, $\eta^2 = .10$. Among the reactive-smile participants, frequent ($M = 5.94$) compared to infrequent ($M = 4.09$) smiling resulted in higher wellbeing, b = .30, SE = .15, $t(104) = 1.98$, $p < .05$; among the proactive-smile participants, frequent ($M = 3.84$) compared to infrequent ($M = 4.88$) smiling resulted in directionally lower wellbeing, b = −.11, SE = .07, $t(104) = −1.53$, $p = .14$.

### Cross-lagged panel analysis

To increase confidence in our causal model that smile-theory and smile-frequency jointly impact wellbeing and ensure that the reverse is not equally true, we conducted a cross-lagged panel analysis (Granberg & King, 1980; Kahle & Berman, 1979; Kenny, 1975; Kenny & Harackiewicz, 1975; Peters & Van Voorhis, 1940; see Fig. 1). First, we mean-centered smile-theory1 and smile-frequency1 and multiplied them to create interaction1, and we mean-centered smile-theory2 and